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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,377	08/26/2003	Yuji Konno	01272.020617	2056

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EXAMINER

NGUYEN, LAMSON D

ART UNIT PAPER NUMBER

2861

DATE MAILED: 04/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

At

<b>Office Action Summary</b>	Application No. 10/647,377	Applicant(s) KONNO ET AL.	
	Examiner Lamson D. Nguyen	Art Unit 2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-5 and 9-22 is/are rejected.
- 7) ☐ Claim(s) 6-8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>5/13/04, 11/14/03</u> . | 6) <input type="checkbox"/> Other: ____  |

### DETAILED ACTION

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-4, 11-22 are rejected under 35 U.S.C. 102(a) as being anticipated by Arquilevich et al. (6,578,943).

***Arquilevich et al teach an inkjet printer comprising:***

**Claims 1, 13, 17:**

- a printing section including a color nozzle rows corresponding to a plurality of four or more colors to carry out a main scan in a main scanning direction, while causing the printing section to eject ink onto a print medium (figure 1, figure 2 teaches four printheads 22-28; figure 3 teaches nozzles forming on nozzle plate 36)
- wherein a nozzle row for a first ink color and a nozzle for a second ink color are arranged at opposite ends of the printing section, a hue difference between the first and second ink colors being the largest among the plurality of colors (figure 2 teaches first printhead 22 and second printhead 28 having largest difference in hue arranged at opposite ends)

**Claims 2, 14, 18:**

- a printing section having nozzle rows corresponding to respective colors and each composed of a plurality of nozzles arranged in a predetermined direction to carry out a main scan in a direction orthogonal to said predetermined direction, while causing said printing section to eject ink onto the printing medium, wherein in the direction orthogonal to the predetermined direction, between nozzle rows for the first and second ink colors having the largest hue difference from each other among the colors, nozzle rows for at least two colors other than the first and second colors are arranged (figure 1, figure 2 teaches four printheads 22-28; figure 3 teaches nozzles forming on nozzle plate 36; figure 2 teaches first printhead 22 and second printhead 28 having largest difference in hue arranged at opposite ends; figure 2 teaches black nozzles and magental nozzles besides cyan and yellow)

**Claims 3, 15, 19:**

- a printing section including color nozzle rows corresponding to a plurality of colors including black to carry out a main scan in a main scanning direction, while causing the printing section to eject ink onto a print medium (figure 1, figure 2 teaches four printheads 22-28; figure 3 teaches nozzles forming on nozzle plate 36; figure 2 teaches 4 color printheads including black # 24)
- wherein a nozzle row for a first ink color and a nozzle for a second ink color are arranged at opposite ends of the printing section, a hue difference

between the first and second ink colors being the largest among the plurality of colors, and a nozzle row for black ink is sandwiched between said nozzle rows of the first and second colors (figure 2 teaches first printhead 22 and second printhead 28 having largest difference in hue arranged at opposite ends, wherein the black printhead 24 is sandwiched between the cyan and the yellow printheads)

**Claims 4, 16, 20:**

- a printing section including a color nozzle rows corresponding to a plurality of black and colors to carry out a main scan in a main scanning direction, while causing the printing section to eject ink onto a print medium (figure 1, figure 2 teaches four printheads 22-28; figure 3 teaches nozzles forming on nozzle plate 36; figure 2 teaches black printhead 24 and color heads 22, 26, and 28)
- wherein a nozzle row for a first ink color and a nozzle for a second ink color are arranged at the largest distance from each other, and a hue difference between the first and second ink colors being the largest among the plurality of colors (figure 2 teaches first printhead 22 and second printhead 28 having largest difference in hue arranged at opposite ends, which makes the distance between them the largest compared to distances from them to other printheads)

**Claim 11:**

\* a secondary color dot is formed by ejecting ink during both forward and backward direction, an overlapping order between forward and backward is different (figure 2, the printing order will be different in a forward direction from that in a backward direction)

**Claim 12:**

- when secondary color is formed, time elapsing until an ink droplet of one of the two colors impacts an ink dot formed by a previously ejected ink drop of the other color impacting the medium is longest for a combination of the first ink color and the second ink color (figure 2, since cyan and yellow are at opposite ends, the time elapsing until one of the two colors impacts an ink drop formed by a previously ejected ink drop of the other color is longest for a combination of cyan and yellow)

**Claims 21-22:**

\* color nozzle rows for a combination of two colors are arranged at opposite ends and at the largest distance of the printing section, the combination of two colors having the largest color difference between an image obtained during a forward scan and an image obtained during a backward scan (figure 2 teaches cyan and

yellow at opposite ends, hence at the largest distance, and the printhead reciprocates, therefore printing both ways)

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arquilevich et al in view of Takayuki Murata (JP 403189167).

***Arquilevich et al teach all claimed features of the invention except:***

**Claim 5:**

- wherein the nozzle rows of the printing section include a nozzle row for cyan ink, one for black ink, one for yellow ink, and one for magenta ink, and the first ink nozzle is of cyan ink and the second nozzle row is of magenta ink

Meanwhile, Murata teaches a printhead where a cyan nozzle is distanced from a magenta nozzle at opposite ends (figures 1 and 4)

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Arquilevich to incorporate the

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teaching of cyan and magenta nozzle rows taught by Murata for the purpose of executing multi-color recording.

Claims 9, 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arquilevich et al in view of Kakutani (6,382,757).

***Arquilevich teaches all claimed features of the invention except:***

**Claim 9:**

- wherein at least one of the nozzle rows located at the ends in the main scanning direction is the nozzle row for black ink

**Claim 10:**

- nozzle rows of same color but different densities arranged adjacent to each other in the main scan direction

Meanwhile, Kakutani teaches an inkjet printhead where there is a nozzle row of black nozzles is positioned at the end (figures 6-7), different densities of same color nozzle rows (figures 6-7)

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Arquilevich to incorporate the teaching of black nozzle and different densities of same color inks taught by Kakutani for the purpose of printing black images and multi-tone images.



***Allowable Subject Matter***


Claims 6-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lamson D. Nguyen whose telephone number is 571-272-2259. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Talbott can be reached on 571-272-1934. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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LAMSON NGUYEN  
PRIMARY EXAMINER  
04/12/05